

M-0001

**Quality Environmental Professionals, Inc.**

February 22, 2009

Ms. Amy Seymour  
Environmental Project Manager  
Indiana Department of Environmental Management  
Leaking Underground Storage Tank Section  
100 North Senate Avenue  
IGCN 1101  
Indianapolis, Indiana 46204

**Re: Further Site Investigation Request Response  
Former Union Street Sunoco  
1126 South Union Street  
Mishawaka, Indiana  
FID #: 9672  
LUST #: 199401501**

Dear Ms. Seymour:

Quality Environmental Professionals, Inc (Qepi) is pleased to respond to the Indiana Department of Environmental Management's (IDEM) review letter of the *Further Site Investigation* submitted May 12, 2008 for the above-referenced site. Qepi has prepared the following responses to comments outlined in the January 14, 2009 letter. IDEM's further site investigation (FSI) request letter is provided as Attachment A.

- ***“An additional boring is needed between the former tank pit north of the building and the property control boundary. Soils should be analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE), naphthalene and carcinogenic polynuclear aromatic hydrocarbons (cPAHs). Total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and extended range organics (ERO) were delineated at SB-8. Groundwater was analyzed for volatile organic compounds (VOCs), TPH (GRO) and TPH (ERO) at SB-8. Groundwater should also be sampled for cPAHs.”***

Based on soil samples collected at SB-8, impacts of TPH were not encountered in the area directly within the footprint of the tank pit located north of the former station building. Based on this information, it is unlikely that soil impacts will be present in soil borings located north of SB-8. In addition, SB-16, located north across East 12<sup>th</sup> Street, did not have any impacts to either soil or groundwater. Qepi agrees that groundwater should be sampled for cPAHs and will incorporate cPAH analysis from samples collected from the existing monitoring wells installed at the site at the onset of quarterly monitoring at the site, to be discussed in a future Corrective Action Plan (CAP).

- ***“Soil samples were not collected at MW-3/SB-9. A boring should be advanced in this area to investigate potential soil contamination. Soil samples should be analyzed for BTEX/MTBE, naphthalene, cPAHs, TPH (GRO) and TPH (ERO). MW-3 should also be sampled for cPAHs and naphthalene.”***



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Based on soil samples collected from soil borings SB-4, SB-5 and SB-8, impacts to soil were not encountered exceeding IDEM Risk Integrated System of Closure (RISC) closure criteria. Based on the adjacent soil boring results, the absence of photo-ionizable vapors and visual and olfactory evidence of impacts encountered during the installation of the soil boring, it was determined that soil samples were not necessary to be collected from this location. Impacts to groundwater were also not encountered in MW-3. As stated above, Qepi agrees that groundwater should be sampled for cPAHs and naphthalene and will incorporate cPAH and naphthalene analysis from samples collected from MW-3 at the onset of quarterly monitoring at the site.

- ***“A boring east of SB-10 is necessary to determine if contamination could potentially be migrating offsite. Soil and groundwater should be collected from a soil boring between SB-10 and the property control boundary and analyzed for BTEX/MTBE, naphthalene, cPAHs, TPH (GRO) and TPH (ERO).”***

Based on the lack of TPH impacts in both SB-5 and SB-10, it appears unlikely that soil impacts are present east of SB-10 and east of the footprint of the former station building. As elevated screening results were encountered in soil and elevated impacts of TPH (ERO) were encountered in groundwater at SB-10, Qepi will advance an additional boring approximately 20 feet east from the location of SB-10 and analyze soil and groundwater as requested above.

- ***“A boring near the eastern edge of the former tank pit containing the waste oil tank is needed to determine if waste oil analytes are present in soil and/or groundwater.”***

The 1,000-gallon waste oil tank was formerly located in the tank pit immediately south and adjacent to the former station building. Elevated impacts of TPH were not encountered in Soil borings SB-10 or SB-11/MW-4, located in the vicinity of the former waste oil tank. Additionally, soil borings SB-3 and SB-4, advanced in the location of the former service station garage where the waste oil was generated, were sampled and analyzed for waste oil analytes. Waste oil analytes were not encountered within the soil borings. Further scrutiny for metals and waste oil analytes in soil and/or groundwater is not necessary at the site.

- ***“The sewer line north of the site could potentially create a preferentially pathway for contamination to enter and migrate offsite. Further investigation should be conducted in this area.”***

The collection of additional soil and groundwater samples in this location is hindered by the location of an underground fiber-optic telecommunications cable line running parallel adjacent to the sewer and the location of East 12<sup>th</sup> Street, a busy intersection directly south of downtown Mishawaka. Qepi collected soil samples from the northern portion of the site, which did not exhibit elevated impacts. Furthermore, collection of soil and groundwater samples on the property across East 12<sup>th</sup> Street indicated impacts to soil and groundwater were not present. Based on these soil borings, Qepi does not anticipate soil impacts present



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along the sewer line. Additionally, groundwater was encountered 11 to 12.5 feet below ground surface (bgs), at the site, far below any potential intersection point with a sewer line.

Qepi will assess the feasibility of collecting additional samples near this area; however it is likely not possible to collect samples around the sewer lines due to the fiber-optic cable, and likely unnecessary based on the lack of soil impacts present and the location of the first encountered groundwater aquifer below the potential location of the sewer line.

- ***“Soil contamination at SB-11 has not been vertically delineated. TPH (ERO) was 595 ppm at six to eight feet. An additional boring in this area is necessary to achieve vertical delineation.”***

Impacts at soil boring SB-11 were encountered exceeding the IDEM RISC Residential Default Cleanup Levels (RDCL) of 80 parts per million (ppm); however impacts were below the Industrial Default Cleanup Levels (IDCL) of 1,000 ppm. Soil samples collected from this boring were collected at the highest screened interval located above the first encountered groundwater saturated zone.

The site is currently located within a mixed use commercial and residential area. The site is currently utilized as green space, with future development to include demolition of a majority of the site to allow for road-way expansion of South Union Street and East 12<sup>th</sup> Street. Qepi intends to request closure for soil under IDEM RISC IDCL in its CAP, to be submitted after FSI approval. Qepi recommends that any additional bottom of soil boring sampling requests, if determined necessary, be conducted during soil closure sampling activities. These activities will be outlined in the future CAP.

- ***“Soil was not sampled at SB-14. A soil boring will need to be advanced in this area to investigate potential soil contamination.”***

Based on field screening results, elevated TPVs were encountered in soil boring SB-14; however these readings were significantly below readings encountered in borings advanced north of SB-14. Based on the lack of significant impacts north of SB-14, Qepi determined that soil samples were not necessary to be collected from this boring at the time of the initial FSI.

Qepi will install an additional soil boring in the area of SB-14, as requested. The soil boring will be sampled for TPH (GRO), TPH (ERO), BTEX/MTBE, naphthalene and cPAHs, as requested.

- ***“MW-5 was not sampled for soil and the groundwater sample from this well exceeds the RISC RDCL for benzene and the IDCL for TPH (GRO) and TPH (ERO). Although BTEX and TPH (GRO) were not present at SB-1, the soil samples were taken at two to four feet and most of the soil contamination at this site appears to be present beyond the 2-4 ft interval. Additionally, SB-1 was not analyzed for TPH (ERO), cPAHs or naphthalene. The consultant should further investigate soil conditions in the area of SB-1 to determine if***



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***contamination is present. Soil samples should be analyzed for BTEX/MTBE, naphthalene, cPAHs, TPH (GRO) and TPH (ERO). Additionally, it will be necessary to step out west of MW-5 to determine the extent of groundwater contamination and delineate the contamination to RISC RDCLs.”***

As discussed above, elevated impacts of BTEX/MTBE and TPH were not encountered in soil borings advanced during this investigation and previous investigations at the site. Based on field screening results, it was determined that additional sampling of soils was not necessary at soil boring SB-12/MW-5 based on concentrations encountered in the surrounding borings.

The original investigation conducted in the portion of the site directly west of the station building was to evaluate the potential for impacts to be present as a result of the gasoline pump island feeder lines located in the area. As such, soil borings SB-1 and SB-2 were sampled from a shallow depth to evaluate this region. Qepi will advance one soil boring in between the location of SB-1 and SB-2 to further evaluate potential soil impact at greater depth than originally sampled.

Qepi understands the need to sample groundwater west of the site across South Union Street. This is a location with commercial properties, Qepi is working to obtain site access and conduct an additional soil boring west of the site.

- ***“Soil samples were not collected at SB-13 and MW-1/SB-2 soil samples were not analyzed for TPH (ERO), cPAHs or naphthalene. Additional soil investigation near MW-1/SB-2 is necessary to determine if contamination from TPH (ERO), cPAHs and/or naphthalene is present.”***

As discussed above, soil samples in the area of SB-13 were deemed not necessary based on field screening results and the results of soil sample results from surrounding sample locations. Qepi will advance one soil boring between the locations of SB-1 and SB-2 to further analyze soil concentrations at depth. Additional soil samples in the vicinity of SB-13 can be collected during closure sampling activities.

- ***“An additional soil boring should be placed near MW-2 to further investigate possible soil contamination. Soil should be sampled for BTEX/MTBE and naphthalene. TPH (GRO) and TPH (ERO) were delineated at MW-2. Additionally, groundwater investigation west of MW-2 should be conducted to determine the extent of groundwater contamination.”***

Based on the results of prior conducted subsurface investigations at the site, the primary chemicals of concerns in soil are TPH (GRO) and TPH (ERO). Soil boring SB-6 did not exhibit impacts for TPH (GRO) or TPH (ERO) exceeding IDEM RISC RDCLs. During closure sampling activities, Qepi will collect samples for BTEX/MTBE and naphthalene, as discussed above, to adhere to IDEM requirements.

Monitoring well MW-2 is located in the northwest corner of the subject site, immediately off of the intersection of South Union Street and East 12<sup>th</sup> Street. The intersection consists of an



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elongated stretch of East 12<sup>th</sup> Street. As such, the intersection is shaped in a manner which makes investigation “west” of MW-2 coincide with the middle of East 12<sup>th</sup> Street. Qepi will place a boring southwest of MW-2, west of MW-5, as requested, to delineate potential western migration of impacts; however further investigation west of the property is not possible at this time; nor warranted, based on the location of the street.

- ***“It appears that SB-6/MW-2, SB-8, SB-10 and SB-11/MW-4 were only sampled at the highest PID reading above the water table. This is acceptable; however, the next clean interval or the end of the boring should also be sampled to achieve vertical delineation.”***

Based on prior sampling protocols initiated with IDEM, Qepi requests that final vertical delineation samples, to be collected at the base of each boring, be collected during closure soil sample collection activities. Based on prior sampling results, impacts exceeding IDEM RISC RDCLs were not encountered in any of the above mentioned soil borings with the exception of SB-11. A deeper soil sample will be collected at the base of a soil boring in the area of SB-11 to demonstrate vertical delineation. Closure sampling activities will be documenting in the future CAP.

- ***“The report did not specify that the soil samples were split into two aliquots; one for screening of TPVs and the other for laboratory analysis. Soil samples used for TPV screening may not be used for laboratory analysis.”***

Qepi’s conducts its subsurface investigations under standard operating procedures (SOP) designed to adhere to the most recent IDEM protocols. Soil samples collected from each soil boring are split into two separate units, with one set of each interval jarred in laboratory prepared sampling containers and stored in a secured, iced cooler at 4° C, and the other set utilized for screening with a pre-calibrated MSA Passport Photo-Ionization detector (PID).

As part of each CAP submitted, Qepi submits a Quality Assurance/Quality Control (QA/QC) Plan, which includes a copy of Qepi’s SOPs. A copy of Qepi’s QA/QC plan will be submitted with the CAP for this site.

- ***“The report did not mention if USEPA Method 5035A was used to collect soil samples. If Method 5035A was used to collect any samples, please provide this information in the sampling description within the text of the report...”***

The nature of this investigation was to further investigate potential soil and groundwater impacts at the site and determine the site’s applicability for closure. At the time when closure soil samples are being collected, Qepi will utilize USEPA SW-846 Method 5035A, to collect soil samples and submit them for analysis. This sampling methodology will only be utilized during closure sampling, as required by IDEM.

- ***“The report references three UST tank pit locations, but only depicts one in all of the figures. The UST tank pit area does not have borders. All UST tank pit area must be depicted in future reports with well-defined boundaries. Please include all former UST***



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***tank pit locations on site maps in the FSI report. Additionally, the location of the former dispenser island should be located on all site maps in the FSI report.”***

Future reports provided to IDEM will include these locations, as requested. This updated site figure has been included in this response letter as Figure 1.

- ***“The report did not include a surrounding site and property figure or description in the text of the report. Additional investigation will be necessary to determine site proximity to sensitive areas (residences, schools, wells...).”***

Prior to the onset of this FSI, Qepi completed a Phase I Investigation for the City of Mishawaka. This Phase I Investigation documented the surrounding properties.

The site is located in a commercial and residential area south of downtown Mishawaka, Indiana. Directly north of the site across 12<sup>th</sup> Street is a vacated warehouse. Located directly across Union Street are a tavern to the northwest and a restaurant to the west. A vacant lot and residential properties are located to the south, southeast and southwest. A residential property is located directly adjacent to the east with an apartment complex located beyond. A recreational field utilized by Mishawaka High School is located approximately one-quarter mile further southwest from the site.

A figure depicting the surrounding property locations will be included in the CAP, to be submitted after the approval of this FSI. This surrounding properties site figure has additionally been included in this response letter as Figure 2.

- ***“The soil description for MW-1 was not included in the report. Please include an updated boring log in the FSI report.”***

During the FSI site work, monitoring well MW-1 was blank drilled in the direct vicinity of soil boring SB-2. As such, MW-1 was not logged. Please refer to the boring log for SB-2 for the soil description for MW-1.

- ***“Submittal of full QA/QC data is recommended when reporting laboratory results for final nature and extent and closure investigations so that the results may be validated.”***

Qepi, in accordance with IDEM guidelines, will request Level IV Data QA/QC will all final closure samples collected for both soil and groundwater at the site. The Level IV Data QA/QC will be submitted with closure documentation when requested. Further documentation of QA/QC procedures will be submitted with the CAP, to be submitted after approval of this FSI.



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If you have any questions regarding the site, please contact myself or Mr. Brent Dayharsh at (317) 351-4255.

A handwritten signature in black ink, appearing to read 'Nivas R. Vijay'.

Nivas R. Vijay  
Project Manager

A handwritten signature in black ink, appearing to read 'Brent A. Dayharsh'.

Brent A. Dayharsh, LPG  
Director of Technical Operations

# Figures





**LEGEND**

- MONITORING WELL
- SOIL BORING
- WATER LINE
- SEWER LINE
- COMMUNICATION LINE

13th STREET

**Qepi** QUALITY ENVIRONMENTAL PROFESSIONALS, INC.  
 1811 South Franklin Road  
 Indianapolis, Indiana 46239

FIGURE 1  
 SITE MAP  
 FORMER UNION STREET SUNOCO  
 1126 SOUTH UNION STREET  
 MISHAWAKA, INDIANA

PROJECT NO. 07-01-05	DATE 7/12/08
DRAWN BY CWH	SCALE 1"=30'
CHECKED BY NRV	SHEET 1

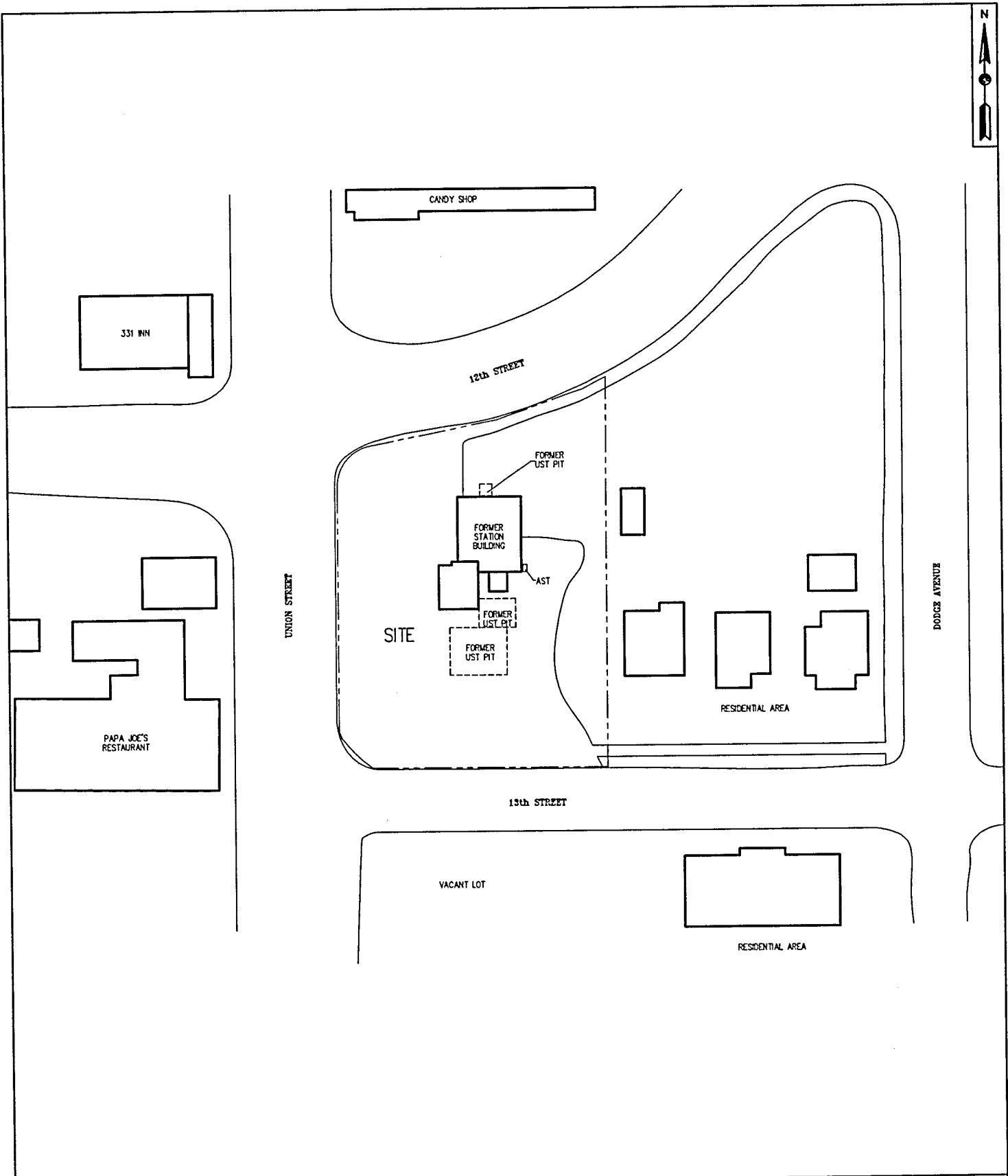
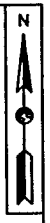


FIGURE 1  
 SURROUNDING PROPERTIES MAP  
 FORMER UNION STREET SUNOCO  
 1126 SOUTH UNION STREET  
 MISHAWAKA, INDIANA

PROJECT NO.	DATE
07-01-05	7/12/08
DRAWN BY	SCALE
CWH	1"=30'
CHECKED BY	SHEET
NRV	1